ABSTRACT

A shallow isolation trench structure and methods of forming the same wherein the method of formation comprises a layered structure of a buffer film layer over a dielectric layer which is atop a semiconductor substrate. The buffer film layer comprises a material which is oxidation resistant and can be etched selectively to oxide films. The layered structure is patterned with a resist material and etched to form a shallow trench. A thin oxide layer is formed in the trench and the buffer film layer is selectively etched to move the buffer film layer back from the corners of the trench. An isolation material is then used to fill the shallow trench and the buffer film layer is stripped to form an isolation structure. When the structure is etched by subsequent processing step(s), a capped shallow trench isolation structure which covers the shallow trench corners is created.